

Open Proficiency Testing Procedures

1 Purpose

This document sets forth the procedures for open proficiency testing and supplements the requirements of the FBI Laboratory *Quality Assurance Manual (QAM)* and the FBI Laboratory *Operations Manual (LOM) Practices for Open Proficiency Testing*.

2 Scope

These procedures apply to Explosives Unit (EU) personnel conducting analyses in the explosives chemistry, fire debris, or explosives and hazardous devices categories of testing. The EU proficiency test program encompasses both internal and external proficiency testing.

3 Procedures

3.1 Proficiency Tests

All proficiency test examinations, reviews, evaluations, and participant feedbacks are recorded in Forensic Advantage (FA). Examiners and technicians will follow the requirements for conducting proficiency tests in FA as provided in the *LOM Practices for Open Proficiency Testing*.

3.1.1 Explosives Chemistry – and Fire Debris Analysis

Each explosives chemistry and fire debris examiner and technician must complete one open proficiency test annually in each category of testing in which they routinely perform casework. Each technician will perform the analytical portion of his/her proficiency test after the normal consultation with an examiner. The technician will perform a complete range of analytical work on the proficiency test commensurate with his/her training. The technician will furnish an examiner with all the notes, instrument printouts and any other analytical data. The technician will complete an external provider's results form to the extent for which he/she is trained. Explosives chemistry and fire debris examiners will complete all sections of the external provider's results forms for proficiency tests conducted by that examiner.

3.1.2 Explosives and Hazardous Devices

Each explosives and hazardous devices examiner and technician must complete one open proficiency test annually in each category of testing in which they routinely perform casework. Each technician will perform the analytical portion of his/her proficiency test after the normal consultation with an examiner. The examination process will include inventory and sorting of

specimens, photography, evidence examination, and case records. Each examiner/technician will contribute to the final product by conducting one or more of the described tasks which are performed as a part of routine casework.

When an examiner and technician are working together, each person must record his/her participation by placing his/her initials on each page of the laboratory notes. If multiple technicians are working together on a proficiency test, the technician responsible for memorializing the analysis of the evidence in the laboratory notes will provide the first set of initials in a series of initials. Technicians who participate in functions other than note preparation will initial after the note preparer technician's initials. The second set of initials indicates that all technicians working on the proficiency test have reviewed the notes and agree with their accuracy (e.g., ABC/DEF, where ABC prepared the notes and DEF inventoried, sorted, and photographed the evidence). To indicate review and concurrence with the data memorialized in the notes, the examiner will initial each page in an area separate from the technician(s).

The technician will furnish the examiner with all of the notes and related records. The examiner will evaluate this material and complete the Test Results portion of the *Explosives Open Internal Proficiency Test Results Form* (Appendix A). The examiner may attach additional pages of text that would constitute the results of examinations for a typical forensic examination report.

3.1.4 Testing Areas and Frequency

The following categories of testing will be tested according to the stated frequency:

| Category of Testing | Frequency | Source |
|----------------------------------|-----------|----------|
| Explosives Chemistry | Annually | External |
| Fire Debris (Ignitable Liquids) | Annually | External |
| Explosives and Hazardous Devices | Annually | Internal |

3.1.5 Proficiency Tests

As appropriate, proficiency tests will be purchased by and prepared in the EU, by an Explosives and Hazardous Devices Examiner, or prepared by another approved individual.

Each qualified examiner will participate in a minimum of one external proficiency test per year in the category of testing for which approved external tests are available. Note: External testing is currently limited to explosives chemistry and fire debris because these are the categories of testing for which there are approved, external tests.

If an approved external test is not available for a particular category of testing, an internally designed and prepared test will meet the annual proficiency testing requirement.

3.1.5.1 Purchased Test Samples

The Proficiency Test Representative (PTR) of the EU will distribute, evaluate, and record proficiency tests for his/her unit, respectively.

External proficiency tests in the explosives chemistry and fire debris categories of testing will be approved and purchased according to the *LOM Practices for Open Proficiency Testing*.

The external samples will be given a unique identifying number by the appropriate PTR that will include the last two digits of the year of the test and other numbers appropriate for distinguishing it from other unit tests. This number will be verified by another person in the unit. The test will be performed as directed by the test provider.

3.1.5.2 Unit Prepared Test Samples

The applicable Technical Leader will approve an individual, other than a qualified examiner or technician in the category of testing, participating in the preparation of test samples, if that individual is not qualified in the category of testing. If approval is not granted, another candidate will be chosen.

These tests will be prepared and approved according to the *LOM Practices for Open Proficiency Testing* and this document. Following the preparation and validation of the internally prepared proficiency tests, the validated results will be maintained by the PTR.

3.1.5.2.1 Test Design for Internally-Prepared Test Samples

The test design options for the explosives and hazardous devices proficiency test are detailed in Appendix B.

3.1.5.2.2 Sample Preparation Record Keeping for Internally Prepared Test Samples

Refer to the *LOM Practices for Open Proficiency Testing* for information that must be included on the *Explosives Open Internal Proficiency Test Preparation Form* (Appendix C) for the preparation of explosives and hazardous devices proficiency tests.

3.1.6 Distribution

The PTR will personally deliver a proficiency test and accompanying letter (see section 3.1.7) to the examiner or technician. The person receiving the test will sign and date an acknowledgment receipt of the proficiency test. This receipt will be kept with the proficiency test file (physical packet or in FA) for that examiner or technician. If the test is to be taken by the technician, the examiner will provide the direction normally given in routine casework.

3.1.7 Due Date

The time limit for external proficiency tests will be determined by the provider. Internal proficiency tests will have a time limit of ten weeks. The PTR will prepare a letter, at the time of the test distribution, indicating that a proficiency test is being administered. The due date will be included in the letter accompanying the proficiency test and recorded in FA. Extensions to the due date for internal tests may be granted by the PTR or the UC. Any due date extension will be documented in FA.

3.1.8 Technical Review

All proficiency tests will be technically reviewed in the same manner as casework as described in the Explosives Quality Assurance Manual – Procedures for Preparing Reports and Retaining Case Records. For all tests, the technical review will be recorded in FA. If the reviewer is participating in the same test distribution, the PTR will ensure that the reviewer has completed his/her portion of the test prior to performing a review.

3.1.9 Administrative Review

All proficiency tests will be administratively reviewed by the Unit Chief or designee. For all tests, the administrative review will be recorded in FA. If the reviewer is participating in the same test distribution, the PTR will ensure that the reviewer has completed his/her portion of the test prior to performing a review.

3.1.10 Records

EU will maintain the records, as appropriate, associated with the completed proficiency tests as set out in the *LOM Practices for Open Proficiency Testing*. The following records will be maintained:

- Completed *Explosives Open Internal Proficiency Test Preparation Form* (Appendix C)
- Signed receipt for the proficiency test
- Administrative and examination records
- Data submitted to the test provider for external tests
- Completed *Explosives Open Internal Proficiency Test Results Form* (Appendix A)
- Results and evaluation notices from the test supplier, if purchased, when applicable

3.1.11 Review and Evaluation of Test Results

All proficiency test results will be evaluated by the PTR and recorded in FA. The evaluation will be reviewed with the Unit Chief and/or Technical Leader. If the PTR is being tested, the Unit

Chief or Technical Leader will perform the evaluation of the PTR's results. Upon completion of the evaluation, the participant will be notified to review the evaluation in FA.

Any proficiency testing discrepancy identified by the PTR, Unit Chief, or Technical Leader will be reported in writing, at the time of detection, to the FBI Laboratory Proficiency Test Program Manager (PTPM). Each participant must respond in writing to any discrepancy identified by the PTR, affected Unit Chief(s) or Technical Leader as noted in the evaluation. These comments, including any suggested corrective action(s), are to be included in the permanent proficiency test file for the participant.

3.1.12 Corrective Action

In the event that a proficiency test results in an error requiring corrective action(s), the Technical Leader will follow procedures described in the *LOM Practices for Open Proficiency Testing*.

4 Safety

Explosives are inherently dangerous and should only be handled by qualified individuals.

5 References

FBI Laboratory Quality Assurance Manual, Federal Bureau of Investigation, Laboratory Division, latest revision.

FBI Laboratory Operations Manual, Federal Bureau of Investigation, Laboratory Division, latest revision.

Explosives Quality Assurance Manual, Procedures for Preparing Reports and Retaining Case Records, Federal Bureau of Investigation, Laboratory Division, Explosives, latest revision.

| Rev. # | Issue Date | History |
|--------|------------|---|
| 6 | 12/16/2019 | Removed references to SAU. Removed SAU Chief from approval lines. |
| 7 | 07/15/2020 | Added EU to section 2. Updated category of testing for Explosives and Hazardous devices in section 3.1.4. Added CU Chief to approval lines. |

Approval

Redacted - Signatures on File

Explosives Chemistry
Technical Leader

Date: 07/14/2020

Explosives and Hazardous
Devices Technical Leader

Date: 07/14/2020

Fire Debris Technical
Leader

Date: 07/14/2020

Explosives Unit Chief

Date: 07/14/2020

Chemistry Unit Chief

Date: 07/14/2020

QA Approval

Quality Manager

Date: 07/14/2020

Appendix A: *Explosives Open Internal Proficiency Test Results and Review Form*

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Appendix B: Internal Proficiency Test Design for Explosives and Hazardous Devices

1 Purpose

In the category of testing of Explosives and Hazardous Devices, an examiner and technician will be requested to conduct examinations to recognize and identify the device components, their characteristics, and function within the device, as appropriate. Note that the concept of identification utilized in explosives and hazardous devices examinations is not used to designate a sole source of the item's origin. Further, the use of the term does not imply that the item's origin is linked to a specific individual. The term *identification* is used in the explosives and hazardous devices examinations discipline to designate the types of IED components that are present in the evidence and their potential commercial or manufacturing sources, unless otherwise noted.

2 Preparation

An internal explosives and hazardous devices proficiency test consists of one of the following:

2.1 Positive Test

Improvised explosive devices (IEDs) will be constructed by qualified explosives and hazardous devices examiners and/or technicians. The devices will be initiated in a containment vessel and/or rendered safe with an appropriate tool/disruptor. The fragments will be collected and distributed to the test participants for analysis. The device can also be provided to the test participants in its original condition; however, no live explosives or explosives components that present a danger to the test participants can be present. If the participants require an explosives chemistry examination result to complete the test, then that result will be provided to the test participants as part of the test. The test should be designed to test the proficiency of the participants in recognizing and identifying device components, their characteristics, and determining their role in the functioning of the device, using one or more of the device-related standard operating procedures (SOPs), as appropriate.

Tests may also be prepared by using inert, explosives-related items (e.g., detonators, detonating cord, grenade bodies) from the FBI Laboratory's explosives reference files and submitting those to the test participants for appropriate analysis. If the participants require an explosives chemistry examination result to complete the test, then that result will be provided to the participants as part of the test. The test should be designed to test the proficiency of the participants in recognizing and identifying the items and their characteristics using one or more of the device-related SOPs, as appropriate.

2.2 Negative Test

Hoax IEDs, also known as hoax bombs, will be constructed by qualified explosives and hazardous devices examiners and/or technicians. The hoax bomb will be distributed to the test participants in its original condition or in a fragmented state due to the use of a render safe procedure (RSP) with an appropriate tool/disruptor. The test should be designed to test the proficiency of the participants in identifying the hoax bomb components, their characteristics, and determining their role in the device, using one or more of the device-related SOPs, as appropriate.

2.3 Packaging for Distribution

Internal proficiency tests should be packaged as typical evidence submissions before being submitted to a test participant for analysis.

Appendix C: *Explosives Open Internal Proficiency Test Preparation Form*

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